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33. ON THE OCCURRENCE OF *DIMERIA CONNIVENS* HACK. IN ANDHRA PRADESH

During a floristic survey of the Eastern Ghats, we collected a grass from Y. Ramavaram, East Godavari district, which was identified as *Dimeria connivens* Hack. The species has not been mentioned in literature (Pullaiah 1997) as occurring in Andhra Pradesh, hence the present report is a new distributional record. *D. connivens* has been reported earlier from Orissa (Saxena and Brahmam 1996), Bihar (Haines 1921) and Kerala (Sreekumar and Nair 1991). The specimen has been deposited in the Herbarium of the Department of Botany, Sri Krishnadevaraya University (SKU), Anantapur. Citation, a detailed description and illustration of this species are provided here.

Dimeria connivens Hack. in DC., Monog. Phan. 6: 689.1889; Hook. f. in Fl. Brit. India 7: 104. 1896; Haines, Bot. Bihar & Orissa 1016 (1062). 1924; Mooney, Suppl. Bot. Bihar & Orissa 192. 1950; Bor, in Kew Bull. 1952: 577.1953 & Grass. Burma Ceylon India Pakistan 140. 1960.

Annual grass, culms tufted, erect or geniculate, up to 30 cm long, terete, smooth; nodes shortly and very sparsely bearded. Leaves linear or narrowly linear-lanceolate, ascending, 2.5-5.5 cm, mostly basal, apex acuminate, margins with sparse tubercled based hairs, mid-rib well marked on the lower surface; sheath slightly keeled, broadly hyaline on the margins, leaf sheath longer than the lower internodes, shorter than the upper, upper sheath close to the culm, lower one rather loose and slipping from the culms, smooth and glabrous, striate; ligule ovate, membranous, shortly ciliate, less than 1 mm long, racemes 2, erect, shortly divergent, 4.2 cm long, lower florets empty, upper florets bisexual, rachis flat, tough, 0.75 mm wide, narrowly winged, ciliate along margins; spikelets alternate, oblong or oblanceolate, greenish-yellow, 3.5-4 mm long, callus base bearded, pedicels very short, flat, lower glume 2.5 mm long, excluding the callus, chartaceous, apex acute with a sharp point, keels covered all along the beak with forwardly directed cilia; upper glume lanceolate or elliptic, 3.5 mm long, acute, winged all along the keel, wings ciliate, apical cilia 1 mm long, margin hyaline, lower lemma oblanceolate to oblong, hyaline, 1.5-2 mm long, ciliate towards apex; upper lemma linear - elliptic - acute, 2-2.5 mm long, hyaline, faintly nerved arista or awn 7 mm long; short ciliate, column dark brown, 3 mm long, stamens 2, anthers 1.5-2 mm long, bright yellow; ovary elliptic, c. 0.3 mm long, styles 0.5 mm, stigmas plumose, 0.6 mm long. Caryopsis linear, slightly curved.

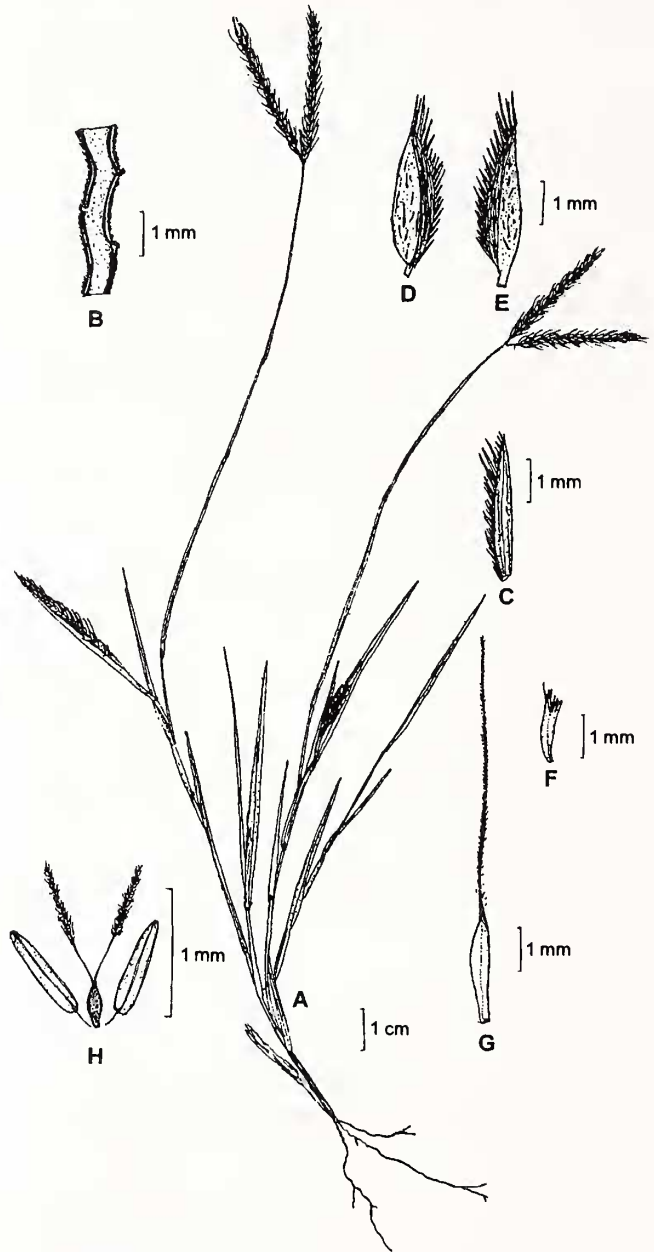


Fig. 1: *Dimeria connivens* Hack., A. Plant, B. Rachis (part), C. Lower glume, D. & E. Upper glume, F. Lower lemma, G. Upper lemma, H. Stamens and Pistil

Status: Rare in grasslands.

Fl. & Fr.: September-December.

Specimens examined: Way to Y. Ramavaram, East Godavari district, Pullaiah and Gayathri 12286.

Note: Pullaiah (1997) reports three species of *Dimeria* i.e. *D. avenacea*, *D. ornithopoda* and *D. kanjirapalliana* in Andhra Pradesh. The present species differs from above in having winged, unawned upper glume.

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34. POIKILOHYDROUS PLANTS IN NORTHERN WESTERN GHATS

Poikilohydry is a highly specialized adaptation shown by plants growing in conditions of periodic water stress. These species are more commonly known as desiccation tolerant or resurrection plants owing to their unique adaptation for sustaining during dry periods. At the beginning of a dry spell, the tissues of these plants lose water and shrivel. However, if small amounts of water become available from rainfall or streams, these plants absorb water and resume normal growth even during the dry period.

A few such species were noted in the northern Western Ghats region where dry period is very long, almost 7-8 months. The most common and typical examples are ferns *Cheilanthes farinosa* (Forsk.) Kaulf., *Selaginella* spp., *Microsorium membranaceum* (Don) Ching and *Pleopeltis nuda* (Hook.) Ching. These species grow in habitats where water stress is severe. *Cheilanthes farinosa* grows in rock crevices or is anchored in moss on rock faces. *Selaginella* spp. are often seen in disturbed forest undergrowth. *Microsorium membranaceum* and *Pleopeltis nuda* grow as epiphytes anchored in moss on tree trunks or on boulders. Moss species and liverworts such as *Anthoceros* spp., *Riccia* spp. also exhibit this character. These plants can become fully functional even when water is provided artificially.

In angiosperms, aquatic lithophytic members of Podostemaceae e.g. *Dalzellia ceylanica* (Gardn.) Wight, *Cladopus hookerianus* (Tul.) C. Cusset, *Polypleurum stylosum* (Wight) Hall and *Zeylanidium subulatum* (Gardn.) C. Cusset also show this adaptation. During the dry period, these plants appear only as greyish white marks on rocks in streambeds. With the approach of rain in June-July, the plants

start photosynthetic activity, flowering and fruiting occurs during October-December. The ability of these plants to withstand extreme dry conditions and high temperatures of uncovered rocky outcrops, and resume normal functions when water is available is ecologically interesting. Gaff and Bole (1986) reported desiccation-tolerant grasses (e.g. *Tripogon*) from shallow soils in rocky areas of India. This is the first report of this peculiar adaptation in diverse plant groups like ferns and aquatic angiosperms in India. Porembski and Barthlott (2000) have discussed global distribution of desiccation-tolerant plants. They have pointed out that Madagascar and African continent, esp. east Africa, are particularly rich in desiccation-tolerant species. Phytogeographically, Indian and African flora are known to have many common elements, but so far there is no similarity in poikilohydric taxa. The most well-known poikilohydric species in east and west Africa belong to Cyperaceae, Poaceae and Scrophulariaceae. None of the Cyperaceae or Scrophulariaceae members have been described from Indian literature as poikilohydrous. It would be interesting to study these families extensively in India to search for species with similar adaptation.

Poikilohydry is a very interesting adaptation from the ecological as well as physiological view. It can have many scientific and agricultural uses in future, such as studying physiology of water uptake, establishing drought resistant crops etc. It is also of horticultural interest as these plants can withstand dry condition very well. Owing to the property of rejuvenation, *Cheilanthes* and *Selaginella* species are often sold in tourist places as curiosities, as 'sanjeevani,